

REMARKS

Claims 2-12 have been previously canceled. Claims 16, 22 and 27-31 have been canceled in this response.

Claims 1, 13-15, 17-21, 23-26 and 32-48 are pending in the present application.

Claim 1 has been amended by indicating that neither the donor plant nor the recipient plant have been pre-selected for a particular phenotype and that the ultimately selected genomic DNA is isolated and reintroduced into another plant, which is cultivated to select a plant with an advantageous phenotypic variation. Support for the amendments can be found in the Specification on page 22, paragraph [0053], first sentence; page 23, paragraph [0055], last four lines; page 23, paragraph [0056], Example 6 and Example 7.

New claim 49 has been added. Support for new claim 49 can be found in the claim set submitted November 16, 2009.

No new matter has been added.

Rejections Under 35 USC § 112, Second Paragraph

The Examiner has rejected claims 35, 37, 39, 41, 43, 45 and 47 as indefinite. The Examiner states that claim 35, line 2, which recites “the ... phenotypic mutation” lacks antecedent basis in either claim 1 or claim 31 from which claim 35 depends. The Examiner suggest replacing “mutation” with “variation.”

Applicants have canceled claim 31 and have amended claim 35 to depend upon claim 1 and to recite “variation” as suggested by the Examiner, thereby overcoming the rejection.

Rejections Under 35 USC § 102

The Examiner has rejected claims 1, 31-36 and 39-40 as anticipated by Wilson et al. The Examiner contends that the reference teaches a method comprising the isolation of genomic DNA from sorghum and its insertion as fragments into cloning vectors to form a genomic library, the random transformation of corn tissue with the unselected fragments, the regeneration of whole transformed plants which exhibit improved agronomic characteristics and the selection of the genomic DNA by Southern blotting. The Examiner admits that Wilson et al. is drawn to the use of genomic DNA from one plant species to confer an advantageous phenotype to a different species via heterosis, where the genomic DNA does not need to be isolated and where the transformed plant exhibiting the desired phenotype is instead crossed to other plants to confer the same phenotype.

The Examiner has rejected claims 1 and 32-35 as anticipated by Kawasaki et al. The Examiner contends that Kawasaki et al teach a method of isolating plant genomic DNA fragments, producing a genomic library for transformation, transforming rice cells, regenerating plants with restored function and selecting the introduced fragments via Southern blotting. Applicants respectfully traverse.

The Examiner has also rejected claims 1, 32-34, 36, 38 and 42 as anticipated by Lazo et al. The Examiner contends that Lazo et al. teach a method of transforming seedling tissue with genomic DNA, regenerating transformed plants which exhibit advantageous traits and selecting the particular genomic fragments.

The Examiner further rejects claims 1, 32-35 and 39 as anticipated by Olsezewski et al. The Examiner contends that this reference teaches the transformation of tobacco cells with fragments of genomic DNA, regenerating plants from the cells and then isolating the DNA from the transformed plants.

Applicants first note that claim 31 has been canceled, thereby obviating the rejection based on this claim.

The amended claims require that the DNA introduced to produce the transformant which is selected as possessing an advantageous trait is then isolated and reintroduced into another plant. As stated by the Examiner, this step is not required by Wilson et al. Therefore, Wilson et al. cannot support a rejection under 35 USC § 102.

Similarly, the requirement in the amended claims that neither the recipient plant nor the donor plant have been pre-selected for a particular phenotype prevents the Kawasaki et al., Lazo et al. and Olsezewski et al. references from supporting rejections based on anticipation because these references do not have both of these requirements.

In view of the above, Applicants request removal of the rejections

Rejections Under 35 USC § 103

The Examiner has rejected claims 1 and 32-48 as unpatentable over Kawasaki et al. in view of Hamilton et al.; further in view of Frary et al.; and further in view of Tigchelaar et al. A summary of the Kawasaki et al. teaching appears above. The Examiner acknowledges that Kawasaki et al. do not explicitly teach the transformation of the same or different plant species as that from which the genomic DNA fragments were originally isolated, using a genomic DNA fragment that confers a phenotypic variation under stress conditions, or the re-introduction of the selected DNA fragment into other plants of the same or different species.

The Examiner tries to cure this deficiency with the Hamilton et al. reference which he contends teaches production of tomato genomic DNA fragments for the identification of agricultural genes of interest via tomato transformation via phenotypic complementation. Hamilton et al. use the method of Frary et al. which the Examiner contends teaches transformation of tomato tissue explants followed by the regeneration of whole transgenic

tomato plants. The Examiner cites the Tigchelaar et al. reference for its teaching of an agriculturally advantageous trait, i.e. tomato delayed ripening mutants.

From this the Examiner concludes that it would have been obvious to the skilled artisan to use the genomic DNA fragment plant transformation of Kawasaki et al. after modifying it to incorporate the tomato genomic DNA library taught by Hamilton et al., the transformation method taught by Frary and the tomato ripening mutant plants taught by Tigchelaar et al. for the selection of DNA containing ripening genes.

The Examiner also rejects claims 1 and 32-48 as obvious over Hamilton (US 5,977,439; "439") in view of Hamilton et al.; further in view of Frary et al. further in view of Tigchelaar et al. The Examiner contends that Hamilton '439 teaches tobacco transformation with fragments of genomic DNA from a genomic library and suggests tomato transformation therewith to identify agriculturally advantageous genes via phenotype complementation, where the DNA fragments containing the advantageous genes can be identified and isolated. Because Hamilton '439 does not teach transformation or the re-introduction of the selected genomic DNA fragment into other plants of the same or different species, the Examiner turns to Hamilton et al., Frary et al. and Tigchelaar et al to fill this gap. The teaching of Hamilton et al., Frary et al. and Tigchelaar et al are summarized above.

The Examiner then concludes that it would have been obvious to the skilled artisan to use the genomic DNA fragment/DNA library plant transformation method of Hamilton and to modify that method by incorporating the tomato genomic DNA library taught by Hamilton et al., the transformation method taught by Frary and the tomato ripening mutant plants taught by Tigchelaar et al. for the selection of DNA containing ripening genes.

Lastly, the Examiner has rejected claims 1, 32-38 and 41-42 as obvious over Lazo et al. in view of Valvekens et al; further in view of Haughn et al. The Examiner's understanding of Lazo et al. is presented above. The Examiner acknowledges that Lazo et al. do not teach transformation of individual *Arabidopsis* cells followed by the regeneration of whole transgenic

Arabidopsis plants there from or the use of other *Arabidopsis* genes conferring desirable traits under normal cultivation conditions. The Examiner attempts to correct this by suggesting that the skilled artisan modify the Lazo et al. method by incorporating Valvekens et al.'s teaching of root tissue transformation, followed by regeneration and by using genomic fragments from Haughn et al.'s herbicide resistant *Arabidopsis* strain GH50.

Applicants respectfully traverse. Applicants have amended the claims to require that neither the donor plant nor the recipient plant has been pre-selected for a particular phenotype and that the genomic fragment selected is isolated from the transformed plant and re-introduced into another plant of any species. The references, taken alone or in combination, do not teach or suggest the claimed method. Applicants therefore request removal of the rejections and allowance of the claims.

Rejoinder

Applicants request reconsideration of the Restriction Requirement. Specifically, Applicants believe that Restriction Group II (claims 13-15) and Restriction Group IV (claims 17-21) should be rejoined with the claims of Restriction Group I, i.e. claims 1-12, that have been examined. All of the claims in Restriction Groups II and IV depend from claim 1. Since the claims of Group I are free of the prior art and do not require any extensive searching, there is no significant burden on the Examiner to consider these claims. In particular, claims 13-15 recite that the a cloning vector carrying the DNA fragment selected by the method of claim 1 is cultured in *E. coli* cells, which should not require an extensive search. Claims 17-21 essentially combine the requirements of Restriction Groups I and II, and likewise would not require extensive searching. Thus, Applicants respectfully request reconsideration of the restriction and rejoinder of Restriction Groups II and IV.

Conclusion

In view of the above remarks, all of the claims are submitted as defining non-obvious, patentable subject matter. Reconsideration of the rejections and allowance of the claims are respectfully requested. Applicant believes the pending application is in condition for allowance.

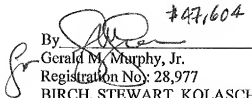
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Susan W. Gorman, Registration No 47,604 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a three (3) month extension of time for filing a reply in connection with the present application, and the required fee of \$1,110.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to our Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under § 1.17; particularly, extension of time fees.

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Respectfully submitted,

By  #47,604
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